

16
TORQUE LIMITING MECHANISM FOR A MECHANICAL
ASSIST MOBLE STORAGE SYSTEM
ABSTRACT OF THE DISCLOSURE

A mobile storage unit includes a drive system which is operable in response to rotation of an actuator handle mounted to the mobile storage unit. A torque limiting mechanism is interposed between the actuator handle and the drive system, for rotating an input member of the drive system in response to rotation of the actuator handle. The torque limiting mechanism is operable to de-couple the actuator handle from the drive system input member when an excessive force is applied to the actuator handle, to prevent adverse effects which can result from application of an excessive force to the components of the drive system. The torque limiting mechanism includes a hub mounted to the actuator handle and an input member mounted to an input shaft associated with the mobile storage unit drive system. In one form, the torque limiting mechanism includes one or more engagement members interposed between the hub and the input member, which are biased toward an engaged position in which the engagement members couple the hub and the input member together so as to transfer rotary force from the actuator handle to the input shaft. When a force exceeding a predetermined threshold is applied to the actuator handle, the engagement members move to a disengaged position to de-couple the hub member from the input member, and to thereby prevent transfer of such force to the input shaft. The engagement members may be in the form of spherical members which are received within passages formed in the hub member and are seated in passages or recesses formed in the input member. In another form, the torque limiting mechanism includes a friction disc between the actuator handle and the input member for transferring a force below a predetermined threshold, and for preventing the transfer of force above the predetermined threshold.